



## Philosophical Transactions

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XVI. *A Letter from Dr. le Cat F. R. S. to C. Mortimer M. D. Secret. R. S. concerning the Cure of Dry Gangrenes: together with a Description of a new-invented Instrument for the Extirpation of Tumours out of the Reach of the Surgeon's Fingers.*

*Translated from the French by Ph. H. Zollman Esq; F.R.S.*

S I R,

*Read March 9 and 16. 1748-9.* FOR some Years past, in curing the dry Gangrene, I have made some Progress, of which I think I ought to inform the Royal Society.

From the Year 1725 to the Year 1733, when I frequented the Hospitals of Paris, I saw that a great many Persons there died of a dry Gangrene, and even that nothing was done to them. I knew that Amputation had been attempted in vain; but I did not see any of the Practitioners endeavour to cure that Distemper by Remedies; nor did I think that Cure impossible. I suspected, that the Cause of the dry Gangrene was the want of a Flow of the arterial Blood and of the Spirits into the Part affected: And this Want, as it accounts for the Deadness, which cannot miss befalling the Part, and the Dryness which attends this sort of Mortification; whereas in the humid Gangrene, it is chiefly the Return of the Blood which is hindered, and thereby the Fluids are accumulated, that swell and distend the Part.

Two Causes so opposite must demand also very different Cures. The Distension which characterizes the humid Gangrene shews the Necessity there is for Scarifications

Scarifications and Evacuations; as the Dryness of the other Gangrene points out the Uselessness of these Operations in this sort.

In the humid Gangrene the Solids are choaked up, and overflowed with the accumulated Liquid; the Nerves are there stupefied and benumbed: What can be more proper then after Scarifications, which disgorge and relax those Regions, than to apply stimulating *Topics? Tonics*, which restore the Spring, the Tone of the solid Parts; help them to expel those superfluous Liquors, the Spirits of which are as it were drowned and suffocated; and in short the Defect being local, if those Succours do not suffice, it is very common to cut off a Limb; the Loss of which may bring on that of the whole Person.

On the contrary, in the dry Gangrene the Solids are void of Fluids of all sorts. The neighbouring Regions, which begin to share of that Want, are affected with the most cruel Pains: If you attack those Parts with the cutting Instrument, you increase the Irritation of the Solids, the Constriction of the Vessels, the Want of Fluids, the Exsiccation, and hasten Death.

On the contrary, the general Indication, which this Distemper affords us is therefore to soften, to relax the Vessels, to draw thither the Liquors by Topics, whilst inwardly all Remedies must be given that are capable of bringing the Blood and the Spirits from the Center to the Circumference.

If this Method is not successful, Death is inevitable; for even supposing that the Amputation was not liable to the dismal Consequences just now specified, there is no Room for this Operation in an internal Defect, which depends on the whole Habit,

Habit, as the Case is with the dry Gangrene. And supposing that there are dry Gangrenes purely local, as the critical *Deposits* of certain malignant Fevers, you may assure yourself, that the very same Nature which has caused this Crisis, if you assist her but a little, will be able also to separate this Mortification from the sound Parts; and she will do it more gently and more dextrously than we.

These were the Notions I had formed to myself of these two sorts of Gangrenes; I only waited for Opportunities to make the Trials which this Theory suggested to me.

I did not find any before 1738. in the Person of a Wood-Merchant of our Town, called Mrs. *Fournaise*. She was then 65 Years of Age, extremely corpulent; the Gangrene seized her at the Heel, by a black and round Blotch, of two Inches Diameter, without any Tumour, with some small scorbutic Spots, great Pains, and a little Fever.

The *Plethora* made me begin with Bleeding and Purging; the latter I repeated every 8 Days.

I applied all over the Foot and Part of the Leg, a Pultis made of Herbs and *Farina's*, emollient, resolving, and aromatic, the suppurative Ointment, and *Storax*.

I gave inwardly diaphoretic Ptisans: In the Morning, Broths of Vipers, of Crayfish prepared with proper Herbs, and above all with Water-cresses: In the Evening a Bolus of *Theriaca*. In short, I followed intirely the Theory I had formed to myself about the dry Gangrene, and in 9 or 10 Days I saw the Suppuration formed; so that my Patient was perfectly cured in about 2 or 3 Months.

This

This Success has been followed by many others, both in our Town and in our Hospital. I have been particularly successful in the latter Place, because I am more Master there than any-where else, to see my Method exactly followed, which I have still improved since 1738.

The Report of these Cures having spread itself as far as *Paris*, I was sent for thither in *February 1746.* to attend M. *Rondé*, Treasurer-General of the Fortifications of *France*, who was at the last Extremity, by a dry Gangrene, which had sphacelated his Foot; the Cause of which had kept him in a languishing Way for 4 Years. M. *Rondé* was in a dreadful Condition, and I was vexed at having been sent for in so desperate a Case: I declared it to his Relations, and to the eminent Surgeons who attended him: I therefore applied my Remedies to the Patient, at the Request of his Relations, only by way of Trial, which I publicly declared to be most doubtful. However, contrary to our Expectation, from the 3d Day there appeared plainly a Beginning of Suppuration, and a Separation of the Eschars. On the 9th Day there was a complete Suppuration, and the Regeneration of the Flesh was even so far advanced, that the Singularity of it raised the Curiosity of some of the first Surgeons of *Paris*. At last, on the 15th Day my Patient found himself in a more favourable Crisis; which, according to the Testimony which M. *Morand*, an assiduous Spectator of my Cure, publicly gave of it, *gave Hopes of Recovery in a Case that had hitherto been thought desperate.*

The Suppuration, the Separation of the Eschars, and the Regeneration of the Flesh, being all that a Surgeon can desire in a like Cure, I then thought that my Mission was fulfilled, and that I might return home, whither I was called by more material Affairs. I had Reason to repent of this Journey : My Patient having naturally a very voracious Appetite, I had confined him to a severe Diet ; but he could hold out no longer ; and, by the Connivance of his Nurse, he took various Food, and that plentifully too. This Conduct had soon ruined our Progress. I returned to *Paris* ; my Representations were useless : The Patient had shaken off the Yoke of the Faculty, and of Reason. Indigestions ensued one upon another. The Looseness, which never left him after, totally suppressed the Suppuration, and made him void the Matter quite crude by Stool, and at last he died.

I was scarcely returned to *Rouen*, when there came to my Hospital a Patient seized with the dry Gangrene, and who so perfectly resembled M. *Rondé*, that we commonly called him *the Rondé of Rouen*.

This Cure being extremely interesting in all its Circumstances, I think, Sir, it is fit to transcribe for you the Observation taken from a Letter which I wrote on the 28th of November 1746. to M. *Morand*, and which he has since made public.

“ As this Letter has been made public by Mr. *Morand*,  
 “ I shall not fill up this *Transaction* with a Trans-  
 “ lation of a long Letter already in Print, but  
 “ only give a short Account of the Case.

*C. M.*  
*Thomas*

*Thomas le Monnier*, a Carpenter, aged 66, was seized with violent Pains in his right Foot resembling those of the Gout, but without swelling, and not preceded by any Sickness. He had work'd hard at his Trade, and still carried it on in marshy Places, and in bad and cold Weather, when he was seized with this Pain. He took various Remedies to no Effect. In November 1745. his great Toe turned black ; which Blackness gradually spread to the other Toes, to the whole Foot, and at last to the Ankle. He was sent to the *Hotel Dieu* at Roan May 19. His Foot was intirely gangrened, black and dry ; his Pulse was low, and a little feverish ; he never slept but 2 Hours a Night, suffered cruel Torments, was greatly emaciated, and of a yellow and leadish Complexion ; his other Foot was œdematos. ‘ M. le Cat says, he would not attack this Case Steel in Hand, by Scarifications or Amputation ; cruel and murthering Methods ! which quite extinguish the Springs of Life in the nervous System, which is already but too much ruffled. A barbarous Surgery ! which Prejudice, Ignorance, and Unskilfulness alone can adopt, and by which I have seen Patients die, when there were great Hopes of their Recovery.’ See *le Dran’s Operations*, p. 30. *Saviard’s Observations*, p. 98. and *de la Motte Obs.* 303. especially p. 371. *Tome III.*

As this Disorder arises from internal Causes, its Cure is chiefly to be attempted by internal Remedies ; and of these I give Cordials, Diaphoretics, and such as are capable of reviving the drooping Spirits, and of quickening the Circulation even to the Extremities :

To

To which should be joined Medicines adapted to the particular Habit of each Patient, whether it be scorbutic, scrophulous, or any other, which may have contributed to have brought on this particular Species of Gangrene: At the same time emollient, attractive, external Remedies, moderately warmed with Spices, applied to the Part, concur to the same Intention, by facilitating the Flow of Blood and Spirits; the Interception of which makes the distinguishing Characteristic of the dry Gangrene. Spirituous and aqueous Topics, impregnated with Volatiles, charged with saline, active, violently stimulating Particles, and others in Use in ordinary Gangrenes, are to be avoided like deadly Poisons; for such Applications would rather contract and dry up the Part the more, and increase the painful Irritations, and dispose the contiguous Parts to a dry Gangrene. He gives us Hopes of a Treatise expressly on this Subject.

But to return to the Case. The Suppuration began to appear, and the *Eschars* distinguished themselves from the live Flesh the very first Days of the Cure; and, after the Time usual in the like Suppurations, the Foot and lower Part of the Ankle separated of themselves; and afterwards, healing over intirely, left a Stump quite cover'd over with a Covering of Flesh, except some Points of Bone, which were not easily to be seen, but might be felt, by passing the Finger over this new Flesh.

After this Separation the Tendons of the Muscles, which lie along the Leg, formed Abscesses and *Sinus's*. Some Practitioners would have laid open these *Sinus's* their whole Length; but such large Incisions

Incisions would have so affected the System of the Nerves, as to have brought back the gangrenous Disposition into the internal Parts, and so have destroy'd the Patient; as M. *le Cat* says he has seen it very lately happen by the like Practice: Wherefore he lets the Matter gather in those *Sinus's*, till it forms a Bag, and greatly thins the Skin, when he opens them almost without Pain, in the Place only where they point. These Openings are sufficient both for the Discharge of the Matter, and for the coming away of the Tendons; which no sooner happens, but the Integuments, whether open'd or not, unite and cicatrize. Thus, at the End of 6 or 7 Months, the Stump itself cicatrized, and the Patient was quite recover'd.

So long a Cure could not but be liable to some Accidents: The Patient was one who would indulge in his Diet, and the Hospital is open for any one to come in and visit their Friends: He had several strong Accesses of an accidental Fever, and five or six violent Indigestions; one in *July* kept him insensible for 20 Hours, and was attended with a Defluxion on the Lungs, accompanied with such Expectorations as gave the worst Prognostications. These were Incidents which render'd his Recovery the more remarkable. He has pick'd up his Flesh, and promises to enjoy a good Habit of Body; so that probably he may live to a good old Age. Several that have been cured by the Doctor of this Disorder have lived to upwards of 70.

Thus, says he, the common Opinion, that it is impossible radically to cure the dry Gangrene, is as false, as the ordinary Method of treating it is bad.

He

He does not establish his Method as infallible; but assures us, that, in 8 or 9 Years Practice it has not failed curing any Persons who exactly followed it, and observed the Regimen prescribed.

“We now return to Dr. *le Cat's* own Words.”

I shall here subjoin the Description of an Instrument of Surgery, which I have lately invented.

*Forceps for the Extirpation of Tumours too remote from the Surgeon's Fingers.*

When the Fingers can lay hold of an Excrecence, the Surgeon need not think of making use of Machines for it; he will never find any convenient enough; but all Tumours that are to be extirpated are not within the Reach of the Fingers: There are even many of them which the Fingers can reach, but where they cannot lay hold of them, nor work as the Extirpation requires. Such are the Excrencences situated a little deep in the *Anus*, in the *Vagina*, in the Throat, &c. For the like Extirpations I have been obliged to invent the *Forceps* which I am going to describe.

*Fig. 1.* The first Figure represents the *Forceps* shut, as they are when the Instrument is closed, or when it holds a small Excrecence.

*AC* is the Extremity designed for laying hold of the Excrecence: It is of Silver, pliant as far as *aa*, in order to be able to give to these Cheeks the different Figures which those of the Tumours to be extirpated may require. The Inside of these Branches

is lined with a Slip of Buff-Skin, or close Shamoys (*KK, Fig. 2. TAB. III.*) to prevent the Tumour's slipping when once it has been laid hold of.

*B D* is the Extremity of the *Forceps*, to be held in the Hand of the Operator.

*E F, G H*, are the Pieces which connect the two Parts of the Instrument, instead of the common Joints or Rivets of the other *Forceps*, in a very advantageous manner. These Pieces make the principal Utility of this Invention.

*Fig. 2. TAB. III.* represents the Pincers taken to pieces in two Parts.

One easily sees that the Piece *E* is to go into the Notch *gg*, so that the Screw *f* may pass through its Slit, and that the Nut *F*, put on upon that Screw *f*, is to keep the Whole together: But one thing which the Figure cannot shew, is, that this Piece *E* is moveable in the Direction lengthways of the *Forceps*, to answer the different Openings of the Checks. You may observe in *b* the Pin upon which this Piece turns.

The Piece *G* likewise receives the Screw *h* into its Slit; and the one and the other is stopped by the Nut *H*. But an essential Remark with regard to the Piece *G*, is, that it must have the Figure of an Arch of a Circle, the *Radius* whereof is the Instrument itself; that is to say, it ought to be the Portion of an Arch of a Circle, the Center of which is at the Extremity of the Instrument; and this to the end that in the small Extremity of the Pincers, the Ends of the Checks find themselves over-against each other, whatever Opening one may give to the larger Extremity, or to the Handle *G H*.

To explain the Use of these *Forceps*:

I suppose I am to extirpate an Excrecence, a *Condyloma*, of two Inches Depth in the *Rectum*. I can-not lay hold of this Tumour with the Fingers, nor make it come out; yet it is very troublesome to the Patient, and one is disposed to slit or lay open the *Anus*, to make room for this Extirpation. With our *Forceps* we shall avoid this cruel Preparative, and shall with great Ease make the Extirpation.

First, I introduce the Fore-finger of the left Hand into the *Rectum* over the Tumour that is to be extirpated, to make myself sure of the Situation: With the right Hand I take the Part of my *Forceps CD*, *Fig. 2.* and thrust it into the *Rectum*, under the Finger which is already there, and make it slide along the right Side of the Tumour, which to me is the left Side.

With the Fingers of the left Hand I support this Instrument in its Situation, whilst with the right Hand I introduce the other Part of the *Forceps AB*, *Fig. 2.* and let it slide along the left Side of the Tumour, which is over-against my right Hand.

Without taking the Fore finger of my left Hand out of the *Rectum*, I put together the Parts of the Instrument. I press between its Cheeks the Tumour by its Root; after which I draw the Fore-finger out of the *Rectum*. I take with the left Hand the Handle of the *Forceps BD*, *Fig. 1.*; I thrust along the right Side of their Cheeks underneath the Knife *Fig. 3.* the Button *A* being turned against the Cheeks, and the Back *CD* towards the Inside of the *Rectum*.

I push this Instrument as far as beyond the Tumour under the Extremity of the Cheeks of the *Forceps*,  
of

of which I can make myself sure with the Fore-finger of the left Hand. — Then I raise towards the upper Part the Cheeks of the *Forceps*, in order to prolong as much as possible the Root of the Excrecence; and in this Condition I pull towards myself, with the right Hand, the Knife; which does not fail cutting the Tumour.

There are Cases, in which the Instrument, *Fig. 4.* will be of more convenient Use. This cuts only by its Crescent *ab*, push'd forward, and mov'd alternately from one Side to the other, to assist its Cutting.

There are Circumstances, wherein the Knife *Fig. 5.* may be preferable.

In fine, there are others, wherein all these Instruments are of Service in one Operation, which happen'd to me in *October 1748.* in the Extirpation of a scirrhouſ *Polypus* in our *Hôtel Dieu*; in which Operation I employ'd not only all the Instruments above described, but also a cutting *Forceps*, which I had contriv'd in *1735.* for the Extirpation of *Fungus's* of the Bladder; and which alone was proper to take off one Part of this Tumour, that was as large as a Goose's Egg, and was failing into the Throat.

I suffer the Wound to bleed a little, and then dress it with all the Precautions usually taken against Hæmorrhages in the Operation of the *Fistula* in the *Anus*.

*Forceps for extracting Stones, and other foreign Bodies, lodged in the Parts where the common Forceps are of no Use.* Fig. 6. TAB. III.

The same Mechanism just now described in the foregoing *Forceps*, may be applied with Advantage to the *Forceps* with which the Stone is pulled out, and to other Instruments designed for extracting Bullets, Splinters of Grenadoes, Pieces of Iron, and other foreign Bodies.

There are several Cases in the cutting for the Stone, in which no Use can be made of the common *Forceps*: The most frequent is this; when a Stone, laid hold by the ordinary *Forceps*, escapes from the Instrument half-way, and so remains engaged in the Incision. The Expedient commonly taken, is to push the Stone back into the Bladder, in order to have again the necessary Room for managing the *Forceps*; But besides the cruel Pain in thus pushing back the Stone into the Bladder, this foreign Body may enter into the cellular Texture which surrounds the Bladder, and lodge itself there, and then the *Forceps* not having any longer that Play which was endeavoured to procure to them, the Stone will remain in that fatal Lodgement, without Possibility of pulling it out, and the Patient will die. This has been seen many times.

The Stone having stopp'd in the Passage of the Incision, you slide along the Body of it one of the Checks of our *Forceps*, *A* or *C*, well-oiled, which will be done without much Trouble, as I have experienced it; the other Check afterwards will

pass on the other Side ; after which you join them, as has been shewn above, taking care to press close the Extremity *AC* upon the Stone, and to leave the largest Opening on the Side of the Handle *BD*, as in *Fig. 7.* both to hinder the Stone from escaping, and to widen its Passage ; then, having well-secured the Screw *G*, you leave the Screw *F* almost at Liberty. You grasp the Instrument with both Hands, as near the Stone as you can, and you draw that Body out, managing it as is usual with the common *Forceps*.

A second Case of cutting for the Stone, where these new *Forceps* will be of great Use, is this ; when the Stone is exactly embraced by the internal Coat of the Bladder ; be it that it completely fills this whole Organ, or that it fills Part of it, which may have closed itself upon the Stone ; as has happen'd to *Joseph Bunel*, whom I cut at *Andelys* in 1743. of which I have communicated the Observation to the *Royal Society* ; or that the Stone has made to itself a Lodgement or Bed in the inside Coat of the Bladder, prolonging itself towards the cellular Texture, which surrounds a small Part of those inside Coats ; as I saw it in the Bladder of M. *Pigache*, an eminent Counsellor of our City of *Rouen*.

In short, every foreign Body lodged in the Substance of any Part of the human Body, be it of what Nature it will, becomes the Object of our Instrument ; and the Extraction of it will, in my Opinion, become much more easy by the means of these *Forceps*, than by the Bullet-drawers, and most of the other Instruments invented for that Purpose ; provided however one gets *Forceps* made of all sorts  
of

of all sorts of Lengths and Bigness, in short, of all the Shapes which the different Cases may require.

I have the Honour to be, &c.

Rouen, May 20.  
1748. N.S.

— Le Cat.

*Addition to the Description of the Glasses for preserving things in Spirit of Wine, by Dr. le Cat, pag. 6.*

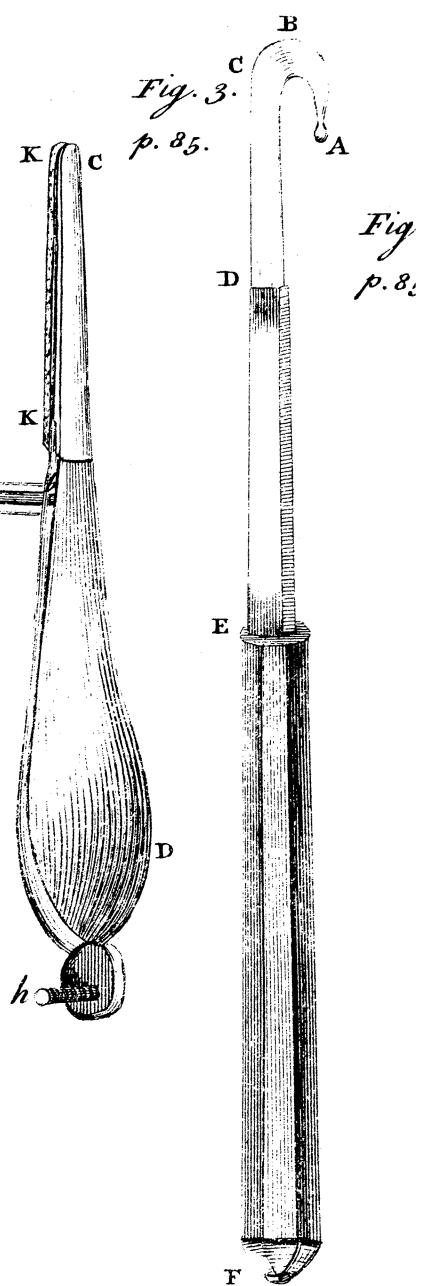
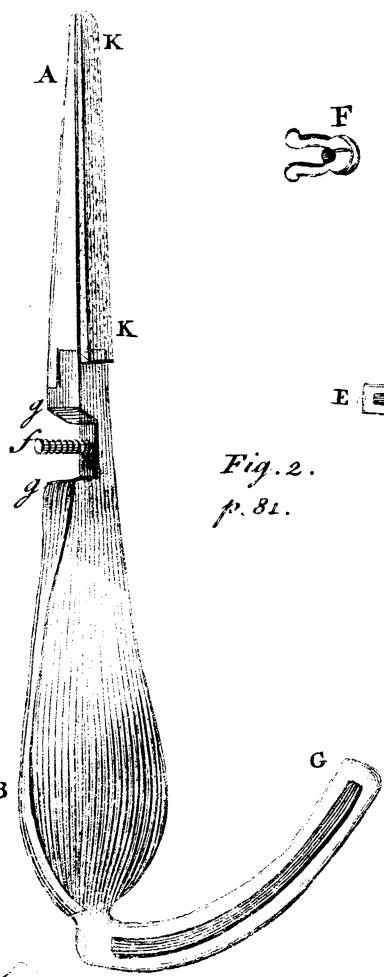
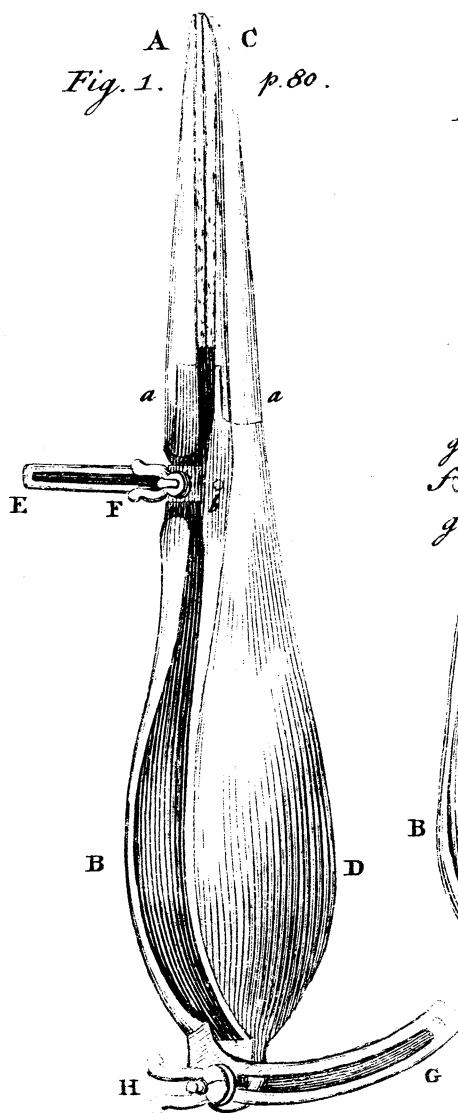
In using the Bottle, of which I have given a Description, I found that it was attended with one Inconvenience.

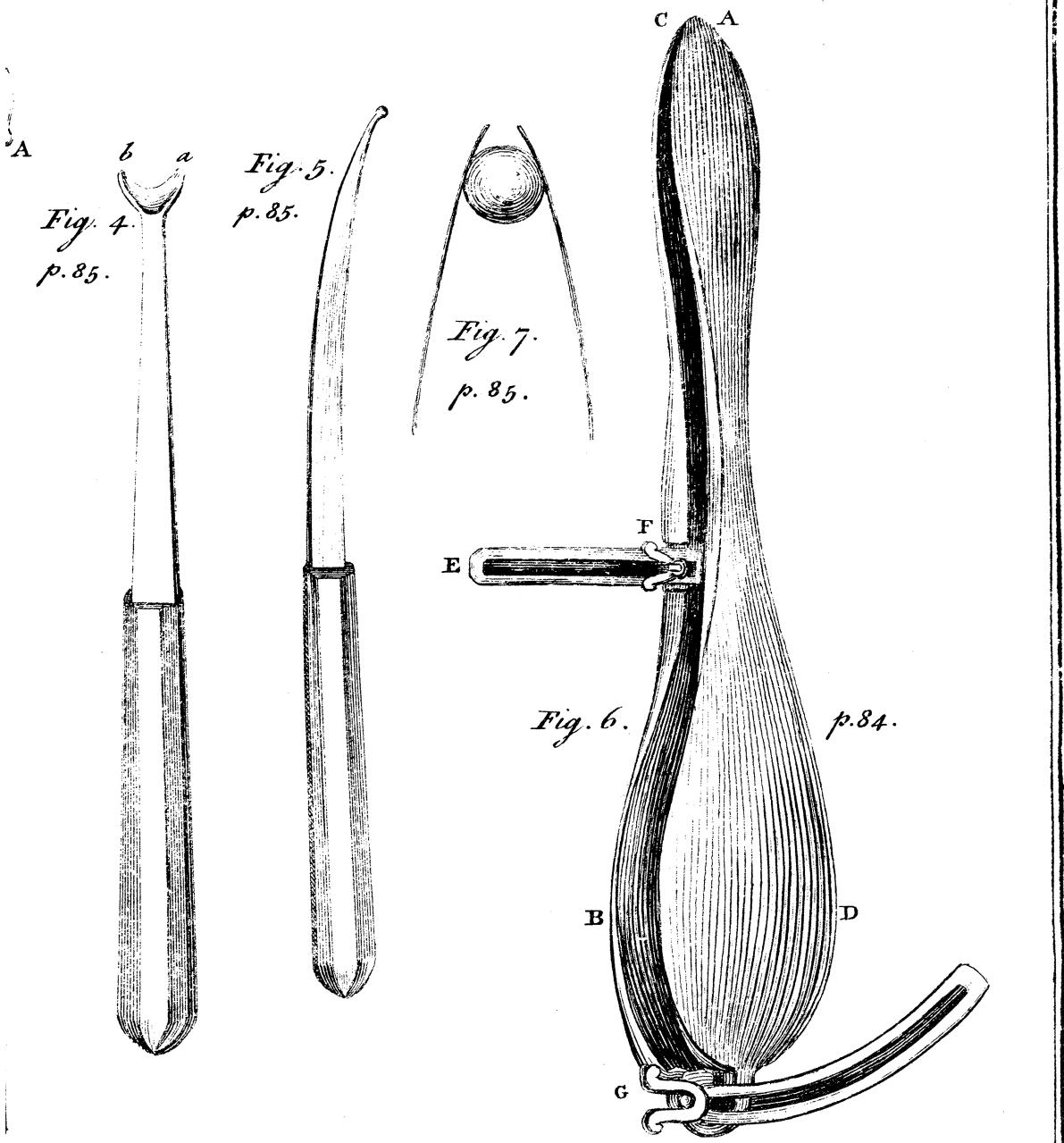
The circular Groove, the Edge of which was turn'd up on the Inside of the Bottle, retained a small Quantity of the Water, when I emptied and rinsed it; so that it was impossible to do it thoroughly.

Wherefore I caused this Vessel to be made, as represented in the annexed Figure, TAB. I. *Fig. 1.* which is a Section of it; and where it appears that the Groove *AA* is placed on the Outside of the Edge of the Bottle. By this means every Drop of the contain'd Fluid can be pour'd out.

It is easy to see that the circular Border *BB* of the Cover is to enter into these Grooves *AA*, which are fill'd with Oil or Quicksilver; and that the Hook *C*, of the same Cover, is destined to suspend in the Liquor such Pieces as are to be preserved in it.

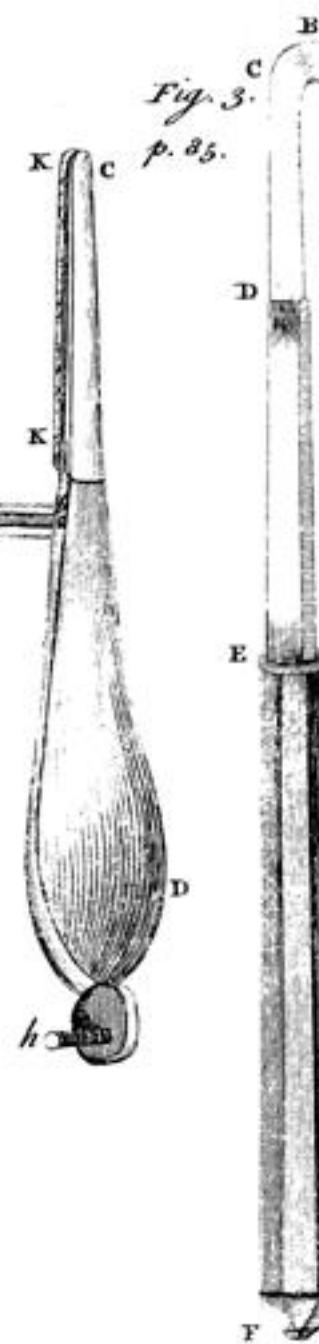
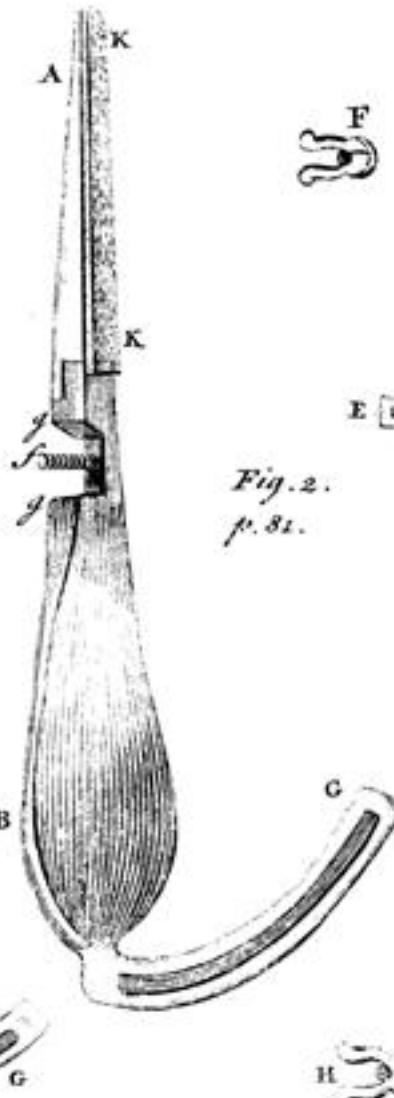
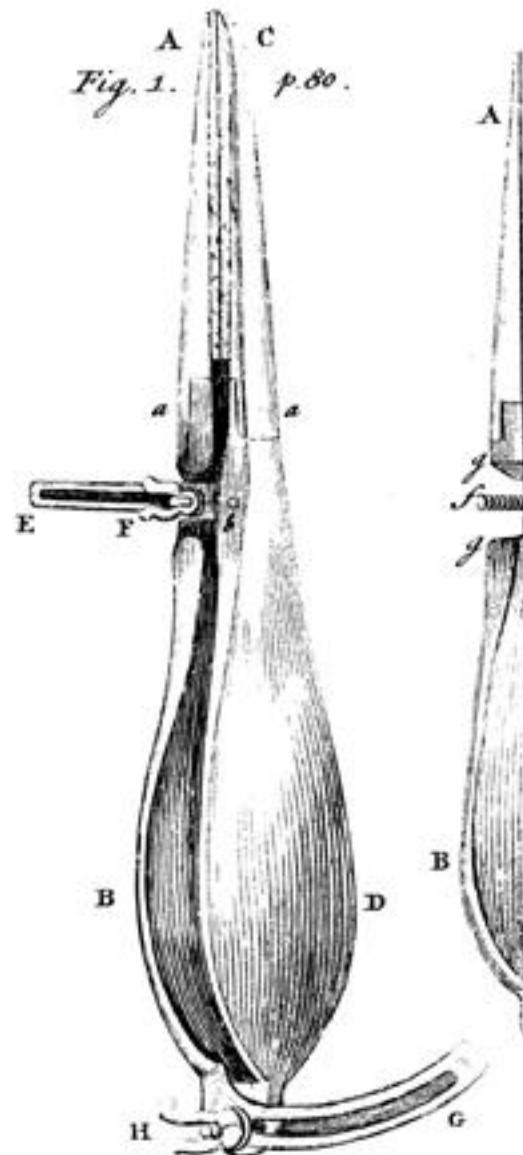
*Philos. Trans.* N<sup>o</sup>. 491. TAB. III.





J. Mynde sc.

*Fig. 1.* p. 80.



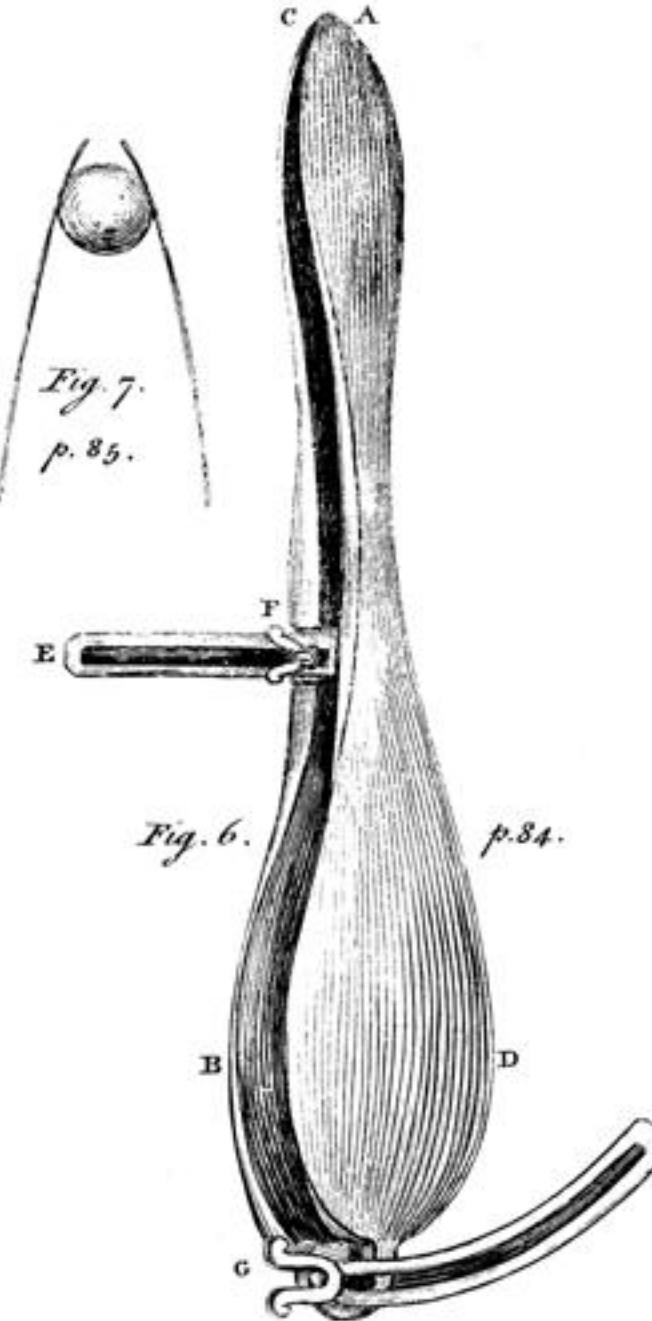
*Fig. 4.*  
p. 85.



*Fig. 5.*  
p. 85.



*Fig. 7.*  
p. 85.



*Fig. 6.*  
p. 84.

